

CATALOG DOCUMENTATION  
REGIONAL EMAP DATABASE  
1993-1994 NEW YORK/NEW JERSEY HARBOR SYSTEM  
BENTHIC REPLICATE BIOMASS DATA BY SITE

TABLE OF CONTENTS

1. DATA SET IDENTIFICATION
2. INVESTIGATOR INFORMATION
3. DATA SET ABSTRACT
4. OBJECTIVES AND INTRODUCTION
5. DATA ACQUISITION AND PROCESSING METHODS
6. DATA MANIPULATIONS
7. DATA DESCRIPTION
8. GEOGRAPHIC AND SPATIAL INFORMATION
9. QUALITY CONTROL/QUALITY ASSURANCE
10. DATA ACCESS
11. REFERENCES
12. TABLE OF ACRONYMS
13. PERSONNEL INFORMATION

1. DATA SET IDENTIFICATION

1.1 Title of Catalog document

Regional EMAP Database  
1993-1994 New York/New Jersey Harbor System  
Benthic Replicate Biomass Data by Site

1.2 Author of the Catalog entry

Melissa M. Hughes, OA0 Corporation

1.3 Catalog revision date

1 July 1997

1.4 Data set name

BENTHIC REPLICATE BIOMASS DATA

## 1.5 Task Group

Regional Environmental Monitoring and Assessment Program

## 1.6 Data set identification code

227

## 1.7 Version

001

## 1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported:

"Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-Estuaries Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

## 2. INVESTIGATOR INFORMATION

### 2.1 Principal Investigator

Ms. Darvene A. Adams  
U.S. Environmental Protection Agency - Region II

### 2.2. Investigation Participant

Mr. Joel S. O'Connor  
U.S. Environmental Protection Agency - Region II

## 3. DATA SET ABSTRACT

### 3.1 Abstract of the Data Set

The BENTHIC REPLICATE BIOMASS data set presents data on the biomass of groups of benthic organisms identified in each acceptable grab collected at a station. Biomass is recorded in grams. Each group is identified by Latin name.

### 3.2 Keywords for the Data Set

Benthic Species, Benthic Species Biomass

## 4. OBJECTIVES AND INTRODUCTION

### 4.1 Program Objective

The project was designed to support resource management decisions related to pollution control and remediation throughout the New York/New Jersey (NY/NJ) Harbor and Bight Apex and to assist the New York-New Jersey Harbor Estuary Program (HEP) in developing a contaminant monitoring strategy to be included in the Comprehensive Conservation and Management Plan (CCMP) for the NY/NJ Harbor system.

## 4.2 Data Set Objective

To provide an overview of the abundance of benthic organisms in the NY/NJ harbor region based on random sampling.

## 4.3 Data Set Background Discussion

The New York/New Jersey Harbor System has been susceptible to toxic contamination due to surrounding land uses. Harbor sediments are contaminant reservoirs which can function as a secondary source of these land use contaminants. Contaminated sediments pose a substantial threat to Harbor resources and are a management challenge. Adverse changes in the biota of the system have been documented with increasing frequency, and many of these changes have been linked to toxic contamination.

## 4.4 Summary of Data Set Parameters

The Benthic Biomass data set values were based on groups of organisms identified in the replicate samples.

# 5. DATA ACQUISITION AND PROCESSING METHODS

## 5.1 Data Acquisition

### 5.1.1 Sampling Objective

Collect sediment grab samples suitable for the identification of benthic organisms.

### 5.1.2 Sample Collection Methods Summary

The grab sampler was lowered through the water column; the grab penetrated the sediment by gravity releasing a trigger allowing the jaws to close. When the grab was pulled from the sediment using the winch, the jaws closed, encapsulating the sediment sample.

Three macroinvertebrate grabs per sampling station were collected using the 0.04-m<sup>2</sup> Young-modified van Veen grab. Benthic grabs were alternated with sediment chemistry/toxicity grabs. Benthic samples were gently washed through a 0.5 mm mesh sieve. The material was preserved in a 10% buffered formaldehyde-rose bengal solution.

### 5.1.3 Sampling Start Date

July 1993  
July 1994

### 5.1.4 Sampling End Date

September 1993  
September 1994

#### 5.1.5 Platform

Sampling was conducted from two U.S.EPA research vessels, the R/V CLEAN WATERS and OSV PETER W. ANDERSON.

#### 5.1.6 Sampling Gear

A 0.04-m<sup>2</sup> or 0.1-m<sup>2</sup>, stainless steel, Young-modified Van Veen Grab sampler was used to collect sediment grabs. This grab sampled an area of 440 cm<sup>2</sup> and a maximum depth of penetration in the sediment of 10 cm.

#### 5.1.7 Manufacturer of Sampling Equipment

Young's Welding, Sandwich, MA

#### 5.1.8 Key Variables

No data were recorded at the time of sample collection.

#### 5.1.9 Collection Method Calibration

The sampling gear did not require any calibration. It required inspection for deformities incurred due to mishandling or impact on rocky substrates.

#### 5.1.10 Sample Collection Quality Control

A successful grab had relatively level, intact sediment over the entire area of the grab and a sediment depth at the center of at least 5 centimeters. Unacceptable grabs included those with grossly slumped surfaces and those completely filled to the top, where the sediment was in direct contact with the hinged top.

The van Veen Grab was rinsed with ambient seawater between grabs at a station to remove remaining organisms. It was thoroughly cleaned with detergent and water between stations.

#### 5.1.11 Sample Collection Method Reference

Reifsteck, D.M., C.J. Strobels and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

### 5.2 Data Preparation and Sample Processing

#### 5.2.1 Sample Processing Objective

Process benthic sediment samples to accurately identify and enumerate benthic infauna and group them for biomass determination.

#### 5.2.2 Sample Processing Methods Summary

Three replicate grabs for benthic macroinvertebrate community structure were obtained at each station. Invertebrates from two of these were

sorted and identified; the third replicate was archived. The macrobenthos were identified to the lowest practical taxonomic category. Procedures for measuring the biomass of benthic macroinvertebrates followed EMAP-E procedures.

Organisms were grouped by taxa for biomass determination. Hard-bodied organisms (bivalves <2 cm and gastropods) were acidified in 10% HCL until all visible traces of shell material were removed. Bivalves larger than 2 cm were shucked before determination of biomass. Biomass was determined as dry wt. after drying for at least 48 hours at 60 degrees C.

#### 5.2.3 Sample Processing Method Calibration

NA.

#### 5.2.4 Sample Processing Quality Control

To standardize the biomass measurements, all samples were preserved in a 10% solution of buffered formaldehyde for at least two months before the biomass measurement.

#### 5.2.5 Sample Processing Method Reference

Frithsen, J.B., L.C. Scott and M. Young. 1994. Methods for Processing Estuarine Benthic Macroinvertebrate Samples from the EMAP Estuaries Virginian Province. Versar, Inc., Columbia, MD.

#### 5.2.6 Sample Processing Method Deviations

NA

### 6. DATA MANIPULATIONS

NA

#### 6.1 Name of new or modified values

NA

#### 6.2 Data Manipulation Description

NA

#### 6.3 Data Manipulation Examples

NA

### 7. DATA DESCRIPTION

#### 7.1 Description of Parameters

#	Parameter SAS Name	Data Type	Len	Format	Parameter Label
1	BIOMGRP	Char	50	0	Biomass Group
2	STATION	Char	8	50	Station Id
3	BIOMASS	Num	8	58	Biomass (g)
4	REP	Num	8	66	Sample Replicate Number
5	COD_EMAP	Char	8	74	EMAP Taxonomic Code

#### 7.1.6 Precision to which values are reported

The biomass is reported to five decimal places.

#### 7.1.7 Minimum value in data set

Variable     MINIMUM

BIOMASS       0

#### 7.1.8 Maximum value in Data Set

Variable     MAXIMUM

BIOMASS     28.12570

### 7.2 Data Record Example

#### 7.2.1 Column Names for Example Records

STATION	DATE	GROUP	REP #	BIOMASS
---------	------	-------	-------	---------

#### 7.2.2 Example Data Records

STATION	DATE	GROUP	REP #	BIOMASS
BA002	931003	Gammaridae	1	0.00040
BA002	931003	Mediomastus ambiseta	1	0.00020
BA002	931003	Mulinia lateralis	1	0.00070
BA002	931003	Nemertinea	1	0.00010
BA002	931003	Nephtys spp.	1	0.00930

## 8. GEOGRAPHIC AND SPATIAL INFORMATION

### 8.1 Minimum Longitude

-74 Degrees 16 Minutes 17.76 Decimal Seconds

### 8.2 Maximum Longitude

-73 Degrees 21 Minutes 0.72 Decimal Seconds

### 8.3 Minimum Latitude

40 Degrees 10 Minutes 35.00 Decimal Seconds

### 8.4 Maximum Latitude

41 Degrees 4 Minutes 53.22 Decimal Seconds

### 8.5 Name of area or region

New York/New Jersey Harbor System

Six sub-basins were sampled in the New York/New Jersey Harbor, including: Upper Harbor, Newark Bay, Lower Harbor (includes Raritan and Sandy Hook Bays), Jamaica Bay, western Long Island Sound and the New

York Bight Apex. For purposes of this study, the region includes the lower portions of the Hudson, Passaic, Harlem, Hackensack and Raritan Rivers, upstream to a near-bottom salinity of 15 ppt, the East River to Long Island Sound and Lower Harbor to the Atlantic Ocean. The New York Bight Apex is defined as the area of ocean bounded on the northwest by the transect from Sandy Hook, NJ to Rockaway Point, NY, the east by 73 deg 30' W longitude and the south by 40 deg. 10'N latitude. The eastern boundary of the western Long Island Sound sub-basin is 73 deg 24' W longitude (from Eaton's Neck Point, NY to Norwalk, CT).

## 9. QUALITY CONTROL AND QUALITY ASSURANCE

### 9.1 Data Quality Objectives

Quality assurance goals were developed and followed for each sample type.

### 9.2 Quality Assurance/Quality Control Procedures

NA

### 9.3 Quality Assessment Results

NA

### 9.4 Unassessed Errors

NA

## 10. DATA ACCESS

### 10.1 Data Access Procedures

Data can be downloaded from the WWW server.

### 10.2 Data Access Restrictions

Data can only be accessed from the WWW server.

### 10.3 Data Access Contact Persons

Ms. Darvene A. Adams  
U.S. EPA Region II

### 10.4 Data Set Format

NA

### 10.5 Information Concerning Anonymous FTP

Data cannot be accessed via ftp.

### 10.6 Information Concerning Gopher and WWW

Data can be downloaded from the WWW servers.

## 10.7 EMAP CD-ROM Containing the Data Set

Data are not available on CD-ROM

## 11. REFERENCES

Adams, D.A. and M. Hunt. 1993. Quality Assurance Project Plan for Environmental Monitoring Projects, "Sediment Quality of the NY/NJ Harbor." U.S. Environmental Protection Agency-Region 2. Edison, NJ.

Adams, D.A., J.S. O'Connor and S.B. Weisberg. 1996. Sediment Quality of the NY/NJ Harbor System. Draft Final Report. U.S. Environmental Protection Agency-Region 2. Edison, NJ. October 1996.

Frithsen, J.B., L.C. Scott and M. Young. 1994. Methods for Processing Estuarine Benthic Macroinvertebrate Samples from the EMAP Estuaries Virginian Province. Versar, Inc., Columbia, MD.

Overton, W.S., D.L. Stevens and D. White. 1990. Design Report for EMAP: Environmental Monitoring and Assessment Program. EPA/600/3-91/053. U.S. Environmental Protection Agency, ORD, Washington, DC.

Reifsteck, D.M., C.J. Strobel and D.J. Keith. 1993. Environmental Monitoring and Assessment Program - Near Coastal Component: 1993 Virginian Province Field Operations and Safety Manual. U.S. EPA NHEERL-AED. Narragansett, RI.

U.S. EPA. 1993. EMAP Laboratory Methods Manual: Estuaries. U.S. Environmental Protection Agency, Office of Research and Development, Environmental Monitoring Systems Laboratory, Cincinnati, OH.

## 12. TABLE OF ACRONYMS

## 13. PERSONNEL INFORMATION

Principal Investigator

Ms. Darvene A. Adams

Monitoring and Assessment Branch

Division of Environmental Science and Assessment

U.S. Environmental Protection Agency - Region II

2890 Woodbridge Ave.

Edison, NJ 08837

Joel S. O'Connor

Placed-Based Protection Branch

Division of Environmental Planning and Protection

U.S. Environmental Protection Agency - Region II



Data Librarian, EMAP-IM  
Melissa M. Hughes  
OAO Corporation  
U.S. EPA NHEERL-AED  
27 Tarzwell Drive  
Narragansett, RI 02882-1197  
(401) 782-3184 (Tel.)  
(401) 782-3030 (FAX)  
hughes.melissa@epa.gov